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ABSTRACT

Evaluated during an 8-week period were the effects of three instructional reading methods for 36 reading retarded students (grades 4-6) with differing degrees of visual function difficulties (perceptual impairment rather than visual acuity problems). Ss were divided into two groups according to their high or low degree of visual function difficulties and were then randomly assigned to treatment groups utilizing Sullivan programed material augmented by tutoring and behavior modification, Sullivan material as directed in the teacher's guide, and Ginn basal reading materials augmented by a language experience approach. Results indicated that neither the instructional method nor the vision variable exerted significant influence on Ss' reading achievement during the 8-week period, although mean improvements tended to be higher for programed materials than for the language experience approach to reading. (LH)

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THE EFFECTS OF THREE METHODS OF TEACHING READING TO READING RETARDED CHILDREN WITH DIFFERENT DEGREES OF VISUAL FUNCTION DIFFICULTIES

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The question of the effects on reading of visual difficulties other than visual acuity has become of increasing importance in recent years in light of suggestive research (Yazbus, 1956; Gibson, 1966). Chalfant & Scheffelin (1969) state that: "There is evidence that performance in ocular-motor tasks affects visual processing."

The inference of this limited review of the available research is that functions other than visual acuity could affect the processing of academic information and may be an explanation of some school learning problems. Numerous visual training or perceptual training programs are now commercially available for the training of visual processes other than that of acuity (Getman, 1965; Dunsing & Kephart, 1965; Frostig, 1964).

A limited amount of educational effectiveness data are available at present to answer effectiveness questions. Chalfant & Scheffelin (1969) offer an extensive review of the problems related to visual process and education. Their information has demonstrated that the evidence so far, at best, is inconclusive on the effects of

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visual processes on an academic subject such as reading.

Education has continually ignored visual factors in the educational research related to the effectiveness of commercially available reading programs. The above evidence strongly suggests that this visual process variable, as measured by an optimetric evaluation, should be controlled or even treated separately in the experimental design.

It has been suggested that reading problems are not related to any variable other than poor teaching (Cohen, 1971). A more likely explanation is that the child has not learned to attend to or the teacher has been unable to control attention to critical variables in learning to read.

The author, in an earlier study, found no differences in basic processes needed for learning between learning disabilitied and normal children except as they related to academics (Welch, Allison & Dahle, 1973).

These data and others suggest that control of attention to critical factors related to reading should improve reading achievement over methods which do not control for an attention factor.

The purpose of this study was to:

1. Test the effectiveness of a programmed reading program over a conventional instruction method.
2. Test the effectiveness of programmed reading with control of attention factors against programmed instruction without

attention behavior under control.

3. Test the effects of three reading instruction methods on subjects (Ss) rated high and low on factors related to visual functioning.

Subjects (Ss): The Ss were 64 children from the fourth through sixth grades in the Jefferson County Schools of Birmingham, Alabama. The referrals were as near as possible to average intelligence and ranged from high level educable mentally retarded to bright normal categories. The large majority of Ss (excluding approximately six children) were of average intelligence as measured by screening devices given at school. All Ss were at least two years retarded in reading as measured by school achievement tests as well as the tests administered for the study. The final constitution of the group consisted of 10 females and 26 males.

Apparatus: The testing apparatus consisted of a complete screening for visual function difficulties and a rating for each S as to the degree of visual function difficulties. Two groups (Low and High) were constituted from this evaluation. Each S was also administered a pre and post evaluation on the Gates-MacGinitie and Gray Oral Reading Tests appropriate for this age group.

The academic apparatus consisted of the Sullivan Programmed Reading Series and the Ginn and Company Basal Reading Series.

Method: The Ss which were rated as low on the visual function screening examination were randomly assigned to three treatment groups: Group I - Sullivan material taught with tutoring and control of S's attention to the task by the use of behavior

modification techniques; Group II - Sullivan material taught as directed in the teaching manual; Group III - The Basal Reading method was taught in conjunction with a language experience approach. The high group (few difficulties noted) was then assigned in the same manner.

Each of the three instructional treatment groups of Ss were assigned six teachers each by random assignment and each group had a teacher-pupil ratio of one to four or less. Group I teachers were given special instruction in the use of a tutoring procedure which utilized behavior modification techniques for the control of task related activities. Group II was given special instruction in the utilization of Sullivan Programmed Reading as directed in the Teacher's Guide. Group III was given special instruction in a language experience method of teaching reading. The teachers for all three groups were changed at the end of four and one-half weeks and a new group of teachers were trained and randomly assigned to the treatment groups for another four and one-half weeks. One week was consumed with pre and post testing. A total of eight weeks of instruction for three hours per day or a total of 120 hours of reading instruction per group was administered. All treatment was held constant with the exception of method of instruction and visual condition.

Results: The data were analyzed by a mixed, two way analysis of variance design (3 X 2 Factorial). The independent variables consisted of method of instruction and degree of visual function

difficulties (poor - good). The dependent variables consisted of the gain or difference score between pre and post measures of two standardized achievement tests. A constant was added to each score to avoid dealing with negative numbers. The original group lost Ss due to attrition and the final group was determined by randomly extracting Ss from each cell until an equal N was obtained.

Table 1 presents the analysis of gains on the Vocabulary Subtest of the Gates-MacGinitie for the effects of Column and Row treatment as well as the Row by Column interaction.

Insert Table 1 about here

These data reveal that the differences in treatment or method of instruction (Column effects) were no greater than chance expectancy. The vision variable (Row effect) exerted no significant influence on the gain made by the two groups over the eight week period. The method of instruction had no significant influence on group membership (Row by Column interaction).

These findings were duplicated by the analysis of the Comprehension Subtest of the Gates-MacGinitie as shown in Table 2.

Insert Table 2 about here

An oral reading test was also employed to ascertain the effects of treatment on a different type of achievement criterion and the findings here reveal similar results. Table 3 shows no significant

Column, Row or Row by Column effects.

Insert Table 3 about here

Discussion: The finding of non-significant results in the present experiment does not render the study useless. It does question, to a large degree, the efficacy of undue attention to perceptually or visually related teaching procedures for children experiencing difficulties in learning to read.

The fact that perceptually or visually impaired (excluding acuity) Ss progressed at essentially the same rate as those Ss not possessing visual difficulties is a practically significant observation. This observation would question the true effects of perceptually related handicaps on the acquisition of academic information, at least under the three methods of instruction employed in this project.

Observation of mean improvements tended to reflect that higher means were observed for programmed materials over the language experience approach to reading for both groups. Perhaps a larger number of Ss would produce more definite results that would more accurately delineate these trends.

The fact that so many teachers were used in the instruction procedure (six per group) may have washed out the effects of tutoring for Group I (Sullivan plus structured tutoring) in that the same teacher-pupil ratio was maintained for the other two groups. Perhaps a replication could improve on this methodological problem.

The delivery of instruction to Ss for only an eight week period may have not been enough time for differences in the three groups to develop. This factor should be dealt with in subsequent research.

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Table 1

Summary of ANOVA for the

Vocabulary Subtest of the Gates-MacGinitie

Source	df	MS	F
Rows	1	0.109	.005 NS
Columns	2	12.693	.553 NS
R X C	2	5.530	.241 NS
Error	30	22.944	

NS = Not significant at .05 Alpha Level.

Table 2

Summary of ANOVA for the

Comprehension Subtest of the Gates-MacGinitie

Source	df	MS	F
Rows	1	0.027	.001 NS
Columns	2	28.082	.718 NS
R X C	2	34.696	.887 NS
Error	30	39.106	

NS = Not significant at .05 Alpha Level.

Table 3

Summary of ANOVA for the

Gray Oral Reading Test

Source	df	MS	F
Rows	1	51.355	0.661 NS
Columns	2	151.748	1.954 NS
R X C	2	74.195	0.956 NS
Error	30	77.650	

NS = Not significant at .05 Alpha Level.